GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA

STARRED QUESTION NO:248
ANSWERED ON:03.08.2016
High Performance Computing
Gandhi Shri Feroze Varun

Will the Minister of EARTH SCIENCES be pleased to state:

(a) the progress made in the strategic programme of the High Performance Computing (HPC) projects so far;

(b) the expenditure incurred and the objectives achieved there from;

(c) whether the desired progress has not been made due to funds constraints and if so, the steps taken by the Ministry in consultation with the Ministry of Finance to increase the budgetary allocation for the project; and

(d) the present budgetary allocation for the project and the details of the expansion plans of the project?

Answer

THE MINISTER FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND
MINISTRY OF EARTH SCIENCES
(DR. HARSH VARDHAN)

(a)-(d) A statement is laid on the Table of the House.

STATEMENT LAID ON THE TABLE OF THE LOK SABHA IN REPLY (a) to (d) TO STARRED QUESTION NO. *248 REGARDING "HIGH PERFORMANCE COMPUTING" TO BE ANSWERED ON WEDNESDAY, AUGUST 3, 2016

(a) The National Supercomputing Mission (NSM) was approved by Cabinet Committee on Economic Affairs (CCEA) in March 2015 with an outlay of Rs 4500 Cr (Department of Science and Technology (DST) Rs 2740 Cr + Department of Electronics and Information Technology (DeitY) Rs 1760 Cr) spread over a period of seven years. The main objective of the mission was creating supercomputing infrastructure of various capacities, developing applications of national importance and capacity building though human resources development. The mission is being jointly implemented by Centre for Development of Advanced Computing (C-DAC) and Indian Institute of Science (IISc) Banglore.

NSM Technical Advisory Committee (NSM-TAC) was constituted under the chairmanship of Dr. V. K. Saraswat, Member, Niti Aayog to provide due guidance for implementation. Constitution of four Expert Groups (i) Infrastructure; (ii) Research and Development (R&D); (iii) Application Development; and (iv) Human Resources Development were setup to provide guidance for executing the mission. At present technology partners are being identified for NSM through the process of Expression of Interest (EOI).

NSM Expert Group on Application Development has identified the following preliminary applications for taking up R&D projects.

â€¢ Drug Discovery platform for neglected diseases.
â€¢ Predictive and personalized medicine.
â€¢ A package of analysis and design of engineering products and processes (including SME, MSME).
â€¢ Design of molecules and materials for societal benefits.
â€¢ Integrated weather and disaster predictions and seismic imaging.
â€¢ Urban well-being.
â€¢ Biomedical and clinical data warehouse with multipurpose tool for mining the integrated resources.
â€¢ Biodiversity mapping through remote sensing.
â€¢ A collection of tools and methods for NSM including cyber security.
â€¢ E-Teacher: Engineering and Computations.
â€¢ Astronomy, Astrophysics and high energy physics.
â€¢ Computational Chemistry.

In addition, a separate programme "Implementation of HPC system as approved by CCEA on 6th Feb 2014 for implementation during the 12th plan with a total outlay of Rs 567.16 crores for augmenting the High Performance Computing (HPC) infrastructure in Ministry of Earth Sciences towards the development of the state-of-art dynamical models for improving the weather and climate prediction. Accordingly, two HPC systems "Aaditiya" with a peak computing power of 790 Teraflops and "Bhaskara" with a peak computing power of 350 Tera Flops have been installed and commissioned at Indian Institute of Tropical Meteorology (IITM), Pune and National Centre of Medium Range Weather Forecasting (NCMRWF), NOIDA respectively.

(b) Release of first installment of Grant in Aid of Rs 50.0 Crore and Rs 70.0 Crore was made by DeitY and DST to C-DAC and IISc respectively towards launching preparatory activities.

In MoES, the expenditure incurred so far is Rs. 206.95 crore. The present HPC facility is being used for assimilating all type of data available from various observing platforms and running high resolution weather and climate models for producing accurate weather forecast in short, medium, long range and climate scale. The HPC is also used for the development of very high resolution dynamical models with high complexity and coupled ocean atmosphere models at monthly, seasonal and climate time scale.

(c) No Madam.

(d) Budgetary allocation for 2015-16 was 174 crore and for 2016-17 is 812.50 crore.

Experts groups on infrastructure is providing directions for entry level, mid range and large HPC systems setup in research institutes with varying capacities and capabilities. The focus is to build systems in India as part of Make in India approach in a phased manner.